**FOM 2211 PRINCIPLES OF MICROBIOLOGY AND PATHOLOGY**

Course description:

General concepts of evolution of disease resulting from infectious and non–infectious causes and the related changes in cells and tissues are introduced. Characteristics of various categories of infectious agents, the host immune mechanisms against them, and the methods to prevent and control their transmission are discussed. Antibacterial, anti-inflammatory and neoplastic drugs are introduced.

Expected outcomes: The students will:

1. Explain the basic concepts and principles of laboratory medicine and laboratory management

2. Explain the processes of inflammation and wound healing

3. Classify anti-inflammatory drugs and explain their mechanisms of action

4. Describe the epidemiology, pathology, control and prevention of common infectious and communicable diseases

5. Describe the distribution of normal flora in the body

6. Discuss the clinical pharmacology of drugs used in communicable diseases

7. Explain abnormal accumulations and pigmentation in the body

8. Describe and explain immune mediated disorders of the body

9. Explain the pathology related to alteration in cell growth

10. Explain the pathology related to cell injury and death

11. Describe and explain the pathology of common genetic and chromosomal disorders

12. Describe the ethical implications in handling hazardous bio-agents

13. Explain the principles of immunology

14. Describe the taxonomy and characteristics of bacteria

15. Describe the principles of disinfections and sterilization

Course Objectives

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Course Content:

• Laboratory Medicine: Principles and concepts of laboratory medicine in: clinical chemistry, toxicology; immunology; haematology; microbiology; parasitology; organization of laboratory services in a hospital. The concepts of life and death International code of notifiable diseases

• Inflammation: Healing and repair, Anti-inflammatory agents

• Common infectious and communicable diseases: Pathology, epidemiology; control and prevention; effect on nutritional status; nosocomial infections: chemotherapeutic agents

• Abnormal and Accumulations and Pigmentation: Amyloidosis, melanin and uric acid deposition; calcification, hyalinization, jaundice

• Immune Mediated Disorders: Classfication and immunological features of: allergic and hypersentivity reactions, autoimmune diseases; immunodeficiency disorders. Graft rejection mechanisms in clinical transplantation

• Alteration in Growth Control: responses of cells to toxic and radiation injuries. Alterations in growth control. Neoplasms. Anti-neoplastic agents

• Genetic Disorders: Metabolic, psychiatric and blood disorders of genetic origin. Chromosomal abnormalities. Genetic causes of wastages and neotal mortality. Ethical issues in genetic counseling. Genetherapy. Epidemiologyt of genetic disorders

• Investigative Procedures: Histopathological, haematological, Microbiological, biochemical, Immunological, forensic procedures and imaging techniques. Autopsy pathology

• Principles of Microbiology: Parasitology, virology, bacteriology and mycology, principles of diagnosis, (Infection control, sterilization, disinfection) use of anti-microbial agents, resistance, synergism and sensitivity tests, personal hygiene practices and handling of equipment, cross infection control

• Immunology: antibody dependent and independent effectors mechanisms, Immune evasion mechanisms and vaccines, immuno-diagnostic tests

Delivery methods:

The course is delivered through:

Overview lectures, Self directed learning, Tutorials, Laboratory practicals, Clinical exposures, Wrap-up seminars

Duration: 5 weeks, CH - 75

Available Resources:

Teaching laboratory with fitted benches: 1800M2, Clinical laboratories in the department of Medical

Microbiology and pathology, Mulago Hospital wards and clinics, Office space, 50 Microscopes

Available staff

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| **Name** | **Qualifications** | **Employer** |  |
| Ass Prof. Joseph Olobo | PhD, B. Vet Medicine | Makerere Univ | Full time |
| Ass Prof. Kaddu-Mulindwa | PhD, B. Vet Medicine | Makerere Univ | Full time |
| Prof. G. Bimenya | PhD, M.Sc, B.Sc. | Makerere Univ | Full time |
| Ass Prof. Henry Wabinga | M.D., M. Med, MBChB | Makerere Univ | Full time |
| Ass. Prof Wilson Byarugaba | PhD, M.Sc, | Makerere Univ | Part time |
| Prof. Ogwal Okeng | PhD, M.Sc, MBChB | Makerere Univ | Full time |
| Ass. Prof. C. Obua | PhD, M.Sc, MBChB | Makerere Univ | Full time |
| Ass. Prof. Paul Waako | PhD, M.Sc, MBChB | Makerere Univ | Full time |
| Dr. Moses Joloba | PhD, M.Sc, MBChB | Makerere Univ | Full time |
| Dr. Najjuka C.F | M. Med, M.Sc, MBChB | Makerere Univ | Full time |
| Dr. Freddie Bwanga | M. Med, MBChB | Makerere Univ | Full time |
| Dr. Benon Asiimwe | PhD, M.Sc, B. Vet Med | Makerere Univ | Full time |
| Dr. David Kateete | M.Sc, B. Vet Med | Makerere Univ | Full time |
| Dr. Kajumbula H M | M. Med, MBChB | Makerere Univ | Full time |
| Dr. Beatrice Acan | BDS | Makerere Univ | Full time |
| Dr. Michael Odida | M. Med, MBChB | Makerere Univ | Full time |
| Dr. Dan Wamala | M. Med, MBChB | Ministry of Health | Part time |
| Dr. Martin Kalyemenya | M. Med, MBChB | Ministry of Health | Part time |
| Dr. Nsereko Mukasa | M. Med, MBChB | Ministry of Health | Part time |
| Dr. Male Mutumba | M. Med, MBChB | Ministry of Health | Part time |
| Dr. Emmanuel Othieno | M. Med, MBChB | Ministry of Health | Part time |
| Dr. Sylvester Onzivua | M. Med, MBChB | Ministry of Health | Part time |
| Dr. Lynette Tumwine | M. Med, MBChB | Makerere Univ | Full time |
| Dr. Hawa Nalwoga | M. Med, MBChB | Ministry of Health | Part time |
| Dr. Sam Kalungi | M. Med, MBChB | Ministry of Health | Part time |
| Dr. David Lukande | M. Med, MBChB | Makerere Univ | Full time |
| Dr. Suzan Nabadda | M. Med, MBChB | Ministry of Health | Part time |

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| Dr. Bossa | M.Sc, B. Vet Medicine | Makerere Univ | Full time |
| Dr. Norah Mwebaze | MSc, MBChB | Makerere Univ | Full time |
| Mr. Dan Kibuule | M.Sc, B.pharm | Makerere Univ | Full time |
| Dr. Sarah Nanzigu | M.Sc, MBChB | Makerere Univ | Full time |
| Mr. Waiswa Muzawalu | M.Sc. BBLT, Dip Med Lab  Tech | Makerere Univ | Full time |
| Mr. Dan Ssempala | Dip Lab Technology | Makerere Univ | Full time |
| Mr. Osuwat | M.Sc. BBLT | Makerere Univ | Full time |